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MUNICIPAL INFRASTRUCTURE AND IDP HOUSING REHABILITATION PROJECT

CONSTRUCTION MANAGEMENT (CM) SUPPORT WORKSHOP

CONTRACT: AID-EDH-I-00-08-00027-00, TASK ORDER: AID-114-TO-11-00002

March 19, 2012

This document was produced for review by the United States Agency for International Development. It was prepared by Tetra Tech for the Municipal Infrastructure and IDP Housing Rehabilitation Project, Task Order number AID-114-TO-11-00002 under the USAID Architectural and Engineering (A&E IQC).



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May 4, 2012

Mr. Bradley Carr
Water Irrigation and Infrastructure Advisor
Office of Economic Growth
US Agency for International Development
11 George Balanchine Street
Tbilisi, 0131
Georgia

Re: Construction Management (CM) Support Workshop March 19, 2012

Dear Mr. Carr:

This report is being submitted to you in accordance with the requirements of task order no. AID-114-TO-11-00002 of contract AID-EDH-I-00-08-00027-00. It provides Tetra Tech's report on the Construction Management (CM) Support Workshop held at Radisson Blu Iveria, Tbilisi on March 19, 2012 for the Municipal Infrastructure and IDP Housing Rehabilitation Project.

We look forward to your review and welcome your comments and suggestions.

Very truly yours,

A handwritten signature in black ink, reading 'Jeffrey W. Fredericks'.

Jeffrey W. Fredericks, P.E., PhD
Chief of Party
Tetra Tech, Inc.
USAID/ Caucasus – Municipal Infrastructure and IDP Housing Rehabilitation Project (GMIP)
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Tbilisi, 0102, Georgia
Tel: +995322910401, Fax: +995322910401
Email: Jeff.Fredericks@tetrattech.com

CC: USAID (George Kokochashvili); MDF (Kartlos Gviniashvili); Tetra Tech (Firouz Rooyani, Dean White, Tom Chicca, Illia Eloshvili); Jeff Fredericks Tetra Tech COP

Table of Contents

Acronyms	ii
1. Background	i
2. Workshop Outcomes	2
3. Workshop Goals	4
4. Workshop Agenda (See Attachment for the Workshop agenda)	5
5. Workshop Participants (A list of Participants is included as Attachment)	5
6. Attachments	5
7. Attachment A - Workshop Agenda	6
8. Attachment B - Workshop List of Participants	7
9. Attachment C- Construction Management Support Power Point Presentation	9

Acronyms

CCN	Cooperating Country National
CFR	Code of Federal Regulations
CO	USAID Contracts Office
COP	Chief Of Party
DCOP	Deputy Chief Of Party
DRC	Danish Refugee Council
EA	Environmental Assessment
EC	European Commission
EIA	Environmental Impact Assessment
EPI	Economic Prosperity Initiative USAID Project
ESS	Environmental Scoping Statement
GEL	Georgian Lari
Geo	Geo Ltd
GMIP	Municipal Infrastructure And IDP Housing Rehabilitation Project (the project)
GoG	Government of Georgia
HO	Home Office
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Persons
IL	Implementing Letters
Kav	Kavgiprotrans-Mg Ltd
KfW	Kreditanstalt für Wiederaufbau (German International Development Banking Agency)
LT TA	Long Term Technical Assistance
MDF	Municipal Development Fund
MLHSA	Ministry of Labor Health and Social Affairs
MRA	Ministry of Refugee Affairs
MRDI	Ministry of Regional Development and Infrastructure
NEO	New Economic Opportunities (USAID Project)
NGO	Non-Government Organization
NTP	Notification to Proceed
PE	Licensed Professional Engineer
PEA	Programmatic Environmental Assessment
PMC	Project Management Committee
PMP	Performance Monitoring Plan
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Corporation Agency
SOW	Scope of Work
STTA	Short Term Technical Assistance
TBD	To Be Determined
TOCOTR	USAID Task Order Cognizant Technical Officer
Tt	Tetra Tech EM Inc
UNHCR	United Nations High Commissioner for Refugees
UNTC	United Nations Treaty Commission
USAID	United States Agency For International Development
USG	U.S. Government
WB	World Bank

USAID/ Caucasus – Municipal Infrastructure and IDP Housing Rehabilitation Project
(GMIP)

Construction Management (CM) Support Workshop

Radisson Blu Iveria, Tbilisi

March 19, 2012

I. Background

Under the United States Agency for International Development (USAID)/ Caucasus – Municipal Infrastructure and IDP Housing Rehabilitation Project (GMIP) Contract No. AID-EDH-I-00-08-00027-00 Order No: AID-114-TO-I 1-00002, Tetra Tech EM Inc. (Tt) is responsible for providing support to monitor current processes and practices, identify and mitigate areas of risk, and carry out oversight and quality control efforts to ensure that selected municipal and Internally Displaced Persons (IDP) infrastructure projects are implemented effectively and in accordance with U.S. and Georgian standards and regulations.

The major purpose of this project is to improve the infrastructure in five selected municipalities - Dusheti, Mtskheta, Gori, Kareli, and Oni, affected during Russian Georgian conflict in 2008 and improve living standards for nearly 4,000 houses constructed by the GoG without running water or sewer systems for IDPs from the August 2008 conflict, to provide each house with a shower, sink, toilet, water taps and other renovation as necessary. The funds will also be used to upgrade existing IDP shelters and redevelop buildings for use as durable housing for IDPs from previous conflicts. Funding will also support various other activities focused on ensuring overall sustainability of IDP housing.

Activities performed under this task order will complement and reinforce the activities, project management, and engineering expertise of USAID/Georgia and its implementing partners. From 2010 to 2013, USAID/Georgia will undertake works in the infrastructure sector in collaboration with the GoG's Municipal Development Fund (MDF) to upgrade municipal infrastructure in targeted municipalities, to install and extend irrigation channels, and to upgrade IDP housing. Municipal infrastructure and irrigation rehabilitation will be implemented through an agreement with the MDF, and the IDP housing will be implemented through a separate agreement with this same agency. Tt will be expected to form a close working relationship with the MDF in the implementation of both projects, accompanying the MDF in all phases of the project and providing monitoring and oversight services to the MDF and USAID. The purpose of this award is to monitor current processes and practices, identify and mitigate areas of risk, and carry out oversight and quality control efforts to ensure that selected infrastructure projects are implemented effectively and in accordance with U.S. and Georgian standards and regulations. Efforts will not duplicate work that MDF does or might perform under its agreement with USAID. The monitoring and oversight role will encompass all areas of project intervention, from procurement planning to final acceptance. It will help to ensure that infrastructure deliverables are effective, efficient, and sustainable and that implementation is carried out within allowable budgets, time restraints, and within accepted quality standards.

The project includes three major components and two subcomponents:

1. Component 1: Municipal Infrastructure
2. Component 2: Rehabilitation Of Irrigation Infrastructure
3. Component 3: IDP Durable Housing
 - a. Subcomponent 1: Provide Water And Sanitation Upgrades For IDP Cottage Housing For IDPS From The August 2008 Conflict
 - b. Subcomponent 2: Provide Durable Housing Solutions For IDP From 1990s Conflict

2. Workshop Outcomes

The goals and schedule of the one day workshop are illustrated on the attached Workshop Agenda handout. The presentation of Relevant Infrastructure Project Management Concepts, CM Principles and Points of Emphasis Related to GMIP

This Workshop was preceded by a GMIP Study carried out to determine what if any “gaps” existed in MDF’s and Tt’s ability to carry out construction management in terms of capacity and capability. This “Gap Analysis” reported on several findings chief of which were two: the need for:

1. Daily full-time, **On-Site Construction Inspectors** to be stationed on all GMIP work; and
2. A **written set of construction management guidelines** that will be used by the MDF On-Site Inspectors, Project Managers, and Tt staff to effectively manage GMIP Construction projects that result in cost effective completed infrastructure.

The theme of the construction management system material presented in the Workshop was also based upon the 15 elements of effective construction management presented in the Gap Analysis, namely:

1. Management Responsibility
2. Documented Construction Management Plan and Quality Management System
3. Design Activity Control
4. Document Control
5. Planned and Transparent Procurement
6. Construction Planning, Communications and Coordination
7. Construction Scheduling and Control
8. Construction Material and Process Acceptance
9. Observation, Inspection, Testing, Measurement, and Cost Control
10. Construction Reporting
11. Nonconformance Reporting and Corrective Action Plan
12. Safety Plan
13. Quality Audits
14. Completed Work Handover, Defects & Liability Period Management, and Close-out System

15. Training Plan

This presentation focused on the number 2 item, a construction management and quality management system and the number 9 item, observation, inspection, testing, measurement, and cost control. Michael McGovern, Tetra Tech Sr. Construction Manager /Engineer made the presentations.

The morning session included identifying some suggested improvements to Tetra Tech's construction management capacity. Seven points were presented as issues that Tetra Tech needed to focus on resolving:

1. **Tetra Tech Oversight (Quality Assurance Plan):** Tt has a draft QA / QC Plan. This needs to be finalized and adopted;
2. **Internal Document Control System Needed:** Tt needs a formal document control system adopted for office use. Again, a draft system exists and needs to be finalized;
3. **Safety Plan Needed:** Tt needs to adopt a project safety plan. This was added to the STTA Consultant's job description in mid-April;
4. **Internal Regular Meeting and Collaboration Needed:** Tt GMIP needs to have set regular weekly meetings where Tt GMIP staff is all updated on important project notices and where each staff member reports on progress on their work. This will also result in regular team building opportunities;
5. **Use of Technical Review Checklists and Sign Offs:** This was specifically noted for the review of design, drawing, specification and other contract documents that are generated by MDF and require Tetra Tech review; and
6. **Engineer's Cost Estimates:** Tt should ensure that MDF generates an Engineer's Cost Estimate for each construction procurement exercise prior to bid opening and that it is used in the bid panel's evaluation of the offered cost.

All of these were discussed and agreements reached on carrying out action directed to either resolve a weakness or to continue studying a recommendation.

In the afternoon, perceived MDF construction management capacity and capability needs were presented. The overarching point presented was that MDF needed a greater "engineering identify" as part of their project implementation operation. MDF participants were quick to point out that perhaps 25 percent of MDF existing staff was engineers. The CM consultant and presenter explained that there was still a need to introduce and utilize more industry acceptable construction management best practices within MDF. The presentation specifically focused upon the need to improve MDF GMIP operations

1. **Reporting Plan:** A regular monthly report of ongoing GMIP construction projects was going to be needed;
2. **Safety Plan:** MDF Construction Contractors needed to have and MDF needed to enforce Safety Plans on GMIP construction subprojects;
3. **Communications Plan:** MDF needed a standard communications strategy for ongoing GMIP construction projects; and

4. **Quality Assurance / Control Plan:** MDF needed its own GMIP QA/QC Plan and GMIP Construction Contractors also needed to have a QA / QC Plan for each subproject that was under construction.

Finally there was a specific focus on who was going provide the On-Site Daily Inspectors. Five alternatives were identified and presented.

1. **Develop In-House MDF Capabilities:** MDF would employ their existing inspectors and hire others as needed;
2. **GOG Owners Carry Out More Intensive CM Program:** The future owner of this infrastructure who would be responsible for its annual O&M would provide the On-Site Inspectors;
3. **Tetra Tech is Tasked to Carry Out More Intensive CM Operations:** Tt would procure the services of one or more Georgian consulting engineering firms who would then provide these on-site inspection services directly for Tt;
4. **MDF Contracts Engineering Consultants:** MDF procures the services of a Georgian consulting engineering firm who would then provide these Inspectors through MDF; and
5. **Combination of Alternative Approaches to Supplement GMIP CM – Some Consultants, Some GOG Owner Resources, Some Additional MDF In-House Additions:** Utilize some combination of the four alternatives previously noted – for instance, some Subproject Daily On-Site Inspectors are provided by MDF, some by municipalities, and some through the Ministry of Agriculture and the GUWC. Or perhaps a combination of Tt and MDF providing inspectors through Georgian engineering firms might make better sense.

The participants discussed these five alternatives at length and it was decided that MDF could and should provide its own On-Site Inspectors with the future Owners of these facilities providing them were they could, specifically, the Ministry of Agriculture for the GMIP Irrigation Subprojects, GWUC for the water supply projects and the Municipalities for the Road, Bridge and Drainage projects.

It was agreed that MDF, Tt and USAID would discuss these findings in greater depth and that MDF and Tt would also visit with the Ministry of Agriculture, GWUC and the Municipalities to discuss this and obtain their agreement to provide staff.

Mr. Fredericks, the GMIP Tt COP also noted that Mr. McGovern, the Tt STTA consultant was also going to prepare the GMIP Construction Management Guidelines within the next 45 days.

3. Workshop Goals

- I. Introduction of Tetra Tech Workshop Facilitator and Michael McGovern, Sr. Construction Manager /Engineer, Goals of Short Term CM Technical Assistance

Assignment, Purpose of This Workshop and the Need for USAID, MDF and Tt Staff Participation and Input

2. Presentation of Relevant Infrastructure Project Management Concepts, CM Principles and Points of Emphasis Related to GMIP
3. **Presentation of Tt CM Oversight Responsibilities and Proposed Procedures to Manage Oversight**
4. **Presentation of Perceived MDF GMIP CM Program Needs and Proposed Alternative Approaches to Supplement MDF CM Implementation**
5. Review and Discuss Other Related Suggested Process Improvements to the Overall GMIP CM Program for MDF, Tt, USAID, Contractors and Owners
6. Agree Upon Any Follow Meetings and Work Necessary to Finalize GMIP CM Program Modalities

4. Workshop Agenda (See Attachment for the Workshop agenda)

1. Project Management Concepts, CM Principles and Points of Emphasis
2. Tt CM Oversight Responsibilities and Proposed Procedures
3. Perceived MDF GMIP CM Program Needs and Proposed Alternative Approaches to Supplement MDF CM Implementation
4. Other Suggested Process Improvements to the Overall GMIP CM Program for MDF, Tt, USAID, Contractors and Owners

5. Workshop Participants (A list of Participants is included as Attachment)

The total number of 27 participated in the workshop (2 Ladies and 25 Gentlemen). This included participants from USAID (3), Ministry of Economy (1), MDF (9) and Tetra Tech (14).

6. Attachments

- Construction Management Support Power Point Presentation
- Workshop Agenda
- Workshop List of Participants

7. Attachment A - Workshop Agenda

Proposed Agenda

<i>Presentation will be informal with questions and answers allowed and encouraged throughout</i>

- | | |
|-----------------|--|
| 9:15 AM | Arrival – Coffee, Tea, and Refreshment |
| 9:30 | Convene in Conference Room |
| | <u>Morning Session</u> |
| | 1. Opening Remarks
<i>USAID, MDF, Tt</i> |
| | 2. Project Management Concepts, CM Principles and Points of Emphasis |
| | 3. Tt CM Oversight Responsibilities and Proposed Procedures
<i>Workshop Facilitator – Michael McGovern, PE</i> |
| 10:15 | Break |
| 11:00 | Reconvene, - Continue Morning Session |
| 12:00 PM | Lunch |

12:45

Convene in Conference Room

Afternoon Session

1. **Perceived MDF GMIP CM Program Needs and Proposed Alternative Approaches to Supplement MDF CM Implementation**
2. **Other Suggested Process Improvements to the Overall GMIP CM Program for MDF, Tt, USAID, Contractors and Owners**

Workshop Facilitator – Michael McGovern, PE

3. **Summary, Identify Any Follow-On Tasks**
Jeff Fredericks, Ilia Elovshvili

3:15

Adjourn, Buffet Refreshments for Participants

8. Attachment B - Workshop List of Participants

List of Participants for Workshop held on Monday, March 19, 2012

	Name/Organization	Title	Signature
	USAID		
1	Bradley Carr	Water, Irrigation and Infrastructure Advisor	<i>[Signature]</i>
2	George Kokochashvili	Engineering Specialist	<i>[Signature]</i>
3	Jesse Gutierrez	Engineering Officer	<i>[Signature]</i>
	MDF		
4	Kartlos Gviniashvili	Program Manager	<i>[Signature]</i>
5	Zurab Baratashvili	Procurement Manager	<i>[Signature]</i>
6	Paata Charakashvili	Head of Division for Relations with Int Organizations	<i>[Signature]</i>
7	George Butikashvili	Head of Monitoring Division, West Georgia	<i>[Signature]</i>
8	Zura Mkhetsadze	Specialist, Monitoring Department	<i>[Signature]</i>
9	George Sesiashvili	Specialist, Monitoring Department	<i>[Signature]</i>
10	David Sharangia	Specialist, Monitoring Department	<i>[Signature]</i>
11	Guram Kobakhidze	Specialist, Monitoring Department	<i>[Signature]</i>
12	George Sekhniashvili	Specialist, Monitoring Department	<i>[Signature]</i>
13	George Kharabadze	Specialist, Monitoring Department	<i>[Signature]</i>
	Tetra tech		
14	Jeffrey Fredericks	COP	<i>[Signature]</i>
15	Ilia Eloshvili	Deputy COP	<i>[Signature]</i>
16	Michael McGovern	PM/Procurement Consultant	<i>[Signature]</i>
17	Teimuraz Levanishvili	Housing Rehabilitation Manager	<i>[Signature]</i>
18	Givi Varduashvili	Civil Engineer	<i>[Signature]</i>
19	Vasil Apkhazava	QA/QC Specialist	<i>[Signature]</i>
20	Sergo Gviniashvili	Finance and Procurement Manager	<i>[Signature]</i>
21	Otar Maghalashvili	Irrigation Engineer	<i>[Signature]</i>
22	Mamuka Shaorshadze	Environmental Engineer	<i>[Signature]</i>
23	Irakli Kakulia	Paralegal	<i>[Signature]</i>
24	Archil Lezhava	Program Specialist/Public Outreach	<i>[Signature]</i>
25	George Nizharadze	Office Administrator	<i>[Signature]</i>
26	Maia Dali	Translator/Interpreter	<i>[Signature]</i>
27	Koba Tsiramua	Regional Engineer	<i>[Signature]</i>
28	Mamuka Gvilava	Environmental Consultant	<i>[Signature]</i>
	Total	28 Persons	

29. Tamar Rukhadze Head of Spatial Planning and Construction Policy Department
 Ministry of Economy and Sustainable Development of Georgia

9. Attachment C- Construction Management Support Power Point Presentation

AID-EDH-I-00-08-00027-00, TASK ORDER AID-I14-TO-I11-00002

Municipal Infrastructure and IDP Housing Rehabilitation Project
Construction Management Support

Michael McGovern, PE

19 March 2012

Tbilisi, Georgia



Page 1





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1. OPENING REMARKS & INTRODUCTIONS



Page 2



Goals of the Workshop

WHO – MDF, Tt, USAID Staff

WHAT – **Interactive Discussion** on USAID Funded GMIP Construction Management (CM) and Organization – What Is Needed and Required?

WHY – To Ensure GMIP Cost Effectiveness as Defined by Generally Accepted International CM Practices

HOW – Results of This Discussion Will Be Shape and Be Included in Final CM Plan Recommendations for Tt and MDF



Workshop Agenda

Morning Session

- Infrastructure Project and Construction Management Concepts
- Tetra Tech Construction Management Proposed Procedures

Lunch

Afternoon Session

- MDF Construction Management Program Needs and Alternatives to Fill Gaps
- Other GMIP Construction Management Suggestions

Identify Any Follow-on Tasks

Buffet Refreshment

Construction Management Support

Michael F. McGovern, PE

Tetra Tech Short Term Assignment

Examine and Evaluate the MDF and Tetra Tech GMIP Construction Management (CM) Program

Provide Recommendations on Strengthening Overall GMIP Construction Management (CM) Systems

Page 5



PREAMBLE

The author's views expressed in this presentation do not necessarily reflect the views of the United Agency for International Development (USAID), the United States Government (USG) and/or Tetra Tech. They are based upon his brief time on the GMIP in Georgia, his experience and upon generally accepted professional engineering and project management practices

Page 5





Morning Session

2. Infrastructure Project Management (PM)
Concepts, Principles and Points of
Emphasis

3. Tetra Tech Oversight Responsibilities
and Proposed Procedures



Project Management – Construction Management (Traditional)



Page 5

Project Management – Construction Management (GMIP)



Page 5

Elements of Construction Management (GMIP)

Formal Management Responsibility Designations and Responsibilities

Formal Contract Management Plan in Place

Documented Quality Management System (Oversights, Records and Audits)

Documented Safety Plan

Meetings and Communications Plan

Design Control Standards & Processes

Document Control System

Reporting and Schedule Control

Donor / Owner Compliant Procurement Procedures

Inspection & Testing Program

Non-Conformance and Corrective Action Program

Training Plan

Page 10





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Design Build Contracts – Typical Features

Owner Defines Broad Project Performance Criteria

Prequalification of Bidders

Lump Sum Contract Pricing Remains Constant

**Designs, Drawings & Specifications by Contractor - AE Team =
Shift in Design Liability**

**Owner Monitors Project Design and Construction to Ensure
Performance Goals Are Met**

Page 11



Primary and Secondary GMIP Organizations and Agencies

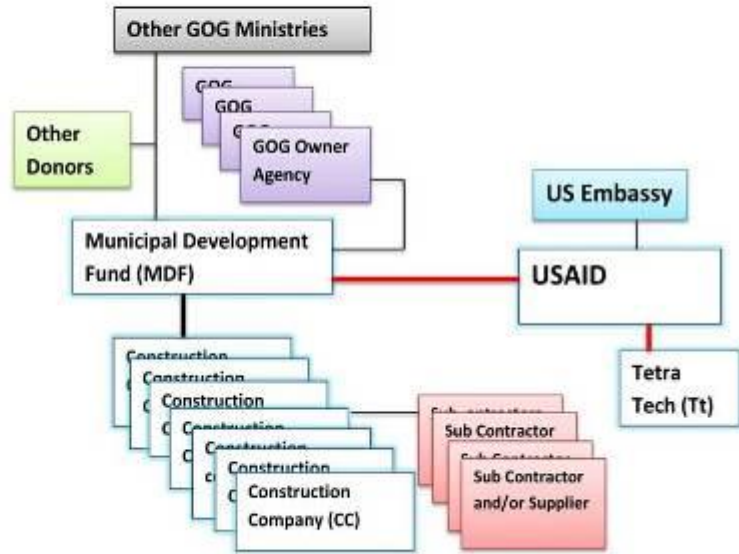


Figure 12



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GMIP Design Build Contracts – Questions

Design Standards and Level of Designs in RFPs

Accuracy of Work Item Quantities in RFPs

More Definitive Quality Control Plan Requirement in RFPs and in Proposals

Contractor Design Study Requirement, Drawing Standards, and Approval Plan

Measurement of Quantities During Construction

Page 18





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USAID – Tetra Tech Contract – (5/11 – 11/13)

Objectives – Oversight, Review, Check, Verify and Assist USAID and MDF in prosecution of GMIP Work

Engineering, Architectural, and Other Technical Needs Review;

- **Potential environmental impact(s) and mitigation(s);**
- **Anticipated social and economic impact to municipal populations;**
- **Expected contribution to regional economic development; and**
- **Reasonableness of estimated cost**

Strengthen MDF and Other Agency Capacities – Training

Oversight of MDF and Contractor Construction Activities

Review and Verify all Contract Payments

Gender Considerations

Handover Procedures

Page 14





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Tetra Tech Oversight Issues

Tetra Tech Oversight (Quality Assurance Plan) – Annual Work Plan Exists – More Set Processes?

Internal Document Control System Needed

Safety Plan Needed

Internal Regular Meeting and Collaboration Needed

Use of Technical Review Checklists and Sign Offs

Use of Bidding Document and Procurement Checklists and Sign Offs

MDF BOQs, Engineer's Cost Estimates and Bid Unit Costs

Page 15



Tetra Tech Operational Issues

Sub-Project Selection & Bidding Document Review Will Transition to CM Monitoring Oversight

New Sub-Project Reporting Format Needs (Executive Summary, Financial, Schedule, Physical Progress, Quality Control, Coordination, Labor and Equipment, Photos)

Additional Administrative Staff Needs

Additional Vehicles and Office Space Needs

Additional IT Equipment Needs

Safety & Inspection Equipment Needs

Internal and MDF Training Plan

Page 18





Afternoon Session

1. Perceived MDF GMIP CM Program Needs and Proposed Alternatives to Supplement MDF CM Implementation
2. Other Suggested GMIP Improvements
3. Identify Any Follow Up Tasks

USAID – MDF Implementation Letters # 3 & #4 (2/11 – 12/13)

Comp. 1 Rehabilitation of Infrastructure / Comp. 2 Rehab of Irrigation Canals

1. Observe all USAID and GOG Environmental Requirements
2. Procurement In Accordance with WB Guidelines and USAID Requirements
3. Nine Step USAID Procurement Approval Process
4. Performance Monitoring Plan Must Be Approved by USAID
- 5. Establishes Broad Tetra Tech Oversight and Monitoring Role**
6. Establishes USAID to MDF Payment Mechanism
7. Establishes Sub-contract Audit Rules and Role
8. Establishes USAID Technical Representative

Page 18



MDF Larger Institutional Questions

Overall Engineering Organization – Identity, Management, Processes, Credibility Does Not Exist

MDF 1997 and 2011 Operations Manual (PDM) – Lack Engineering Processes and Procedures

MDF World Bank Procurement Procedures – Lack Engineering Role

Page 19



Construction Management Findings

Where Is Project Management Knowledge Base (15 Years of Data)

Where Is Project Management Quality Assurance

Project Development Manual (Selection and Evaluation Process) Exists

Where are MDF Design Guidelines and Standards (IBC, Eurocodes, Russian Standards, Georgian Standards)

Design Quality Control

Unit Price Book

Page 20



Proposed MDF Construction Management Plan

Proposed 15 Existing MDF Staff Members – Insufficient

No Detail on Offices, Transport, IT, Administrative Requirements

No Organization Chart

Lack of Definition and Attention to Design – Build Procurement Mechanisms

Lack of Reporting Plan

Lack of Safety Plan

Lack of Communications Plan

Lack of Quality Assurance / Control Plan

Page 21



Alternatives to Strengthening MDF CM Practices #1

Develop In-House MDF Capabilities

- Add Engineering, Technical and Administrative Staff
- Add Other Transport, Office, IT, Resources
- Write and Adopt Operations CM QC Plan
- Train Staff, Implements New Plan

Advantages – MDF Institution Exists, Desire for Improvement Exists

Disadvantages – Requires Major Philosophical Change in Approach to PM, Time Required to Plan and Implement

Page 22



Alternatives to Strengthening MDF CM Practices #2

GOG Owners Carry Out More Intensive CM Program

- Requires Re-organization of Existing Engineering, Technical and Administrative Staff
- Re-Task or Add Other Transport. Office, IT, Resources
- Write and Adopt Specific GMIP Operations CM QC Plan
- Train Staff, Implement New Plan

Advantages – Some Strong GOG Owner Engineering Institutions Exist (Roads Irrigation, Public Utilities), Increases GMIP Sustainability

Disadvantages – Some GOG Owners Lack Required Engineering Capacity (Municipalities) Institutional Arrangements Would Be Complex and Require Time to Develop

Alternatives to Strengthening MDF CM Practices #3

Tetra Tech is Tasked to Carry Out More Intensive CM Operations

- Requires Adding Engineering, Technical and Administrative Staff
- Requires Additional Other Transport, Office, IT, Resources
- Write and Adopt Specific GMIP Operations CM QC Plan
- Train Staff, Implement New Plan

Advantages – Tt Has This Experience and Capability, Assurance of Cost Effectiveness

Disadvantages – High Cost, Developing Institutional Agreements and Arrangements Would Be Complicated, Time to Implement



Alternatives to Strengthening MDF CM Practices #4

MDF Contracts Engineering Consultants

- Develop Scope of Work
- Requires MDF to Contract for Required Services – Engineering, Technical and Administrative Staff, Transport, Offices, IT, Resources
- Write and Adopt Specific GMIP Operations CM QC Plan
- Train Staff, Implement New Plan

Advantages – Faster Implementation, Consultants Have Resources and Capability, Not a New Approach – MDF Has Done this Before

Disadvantages – Some Additional Cost, Some New Institutional Arrangements Would Be Required to Be Developed

Alternatives to Strengthening MDF CM Practices #5

Combination of Alternative Approaches to Supplement GMIP CM – Some Consultants, Some GOG Owner Resources, Some Additional MDF In-House Additions

- Requires Consultant SOW Development and Contracting for Services
- Requires Re-organization of Existing Engineering, Technical and Administrative Staff
- Re-Tasking and Addition of Other Transport, Office, IT, Resources
- Write and Adopt Specific GMIP Operations CM QC Plan
- Train Staff, Implement New Plan

Advantages – Attempts to Increase GMIP Sustainability and Engineering Capabilities in GMIP CM, Possible Sustainability Improvement, More Opportunity for Training

Disadvantages – Some Additional Cost, Time to Arrange and Implement, Institutional Arrangements Would Be Very Complex and Require Time to Develop, Cumbersome and Complex Command and Control Structure

Page 28

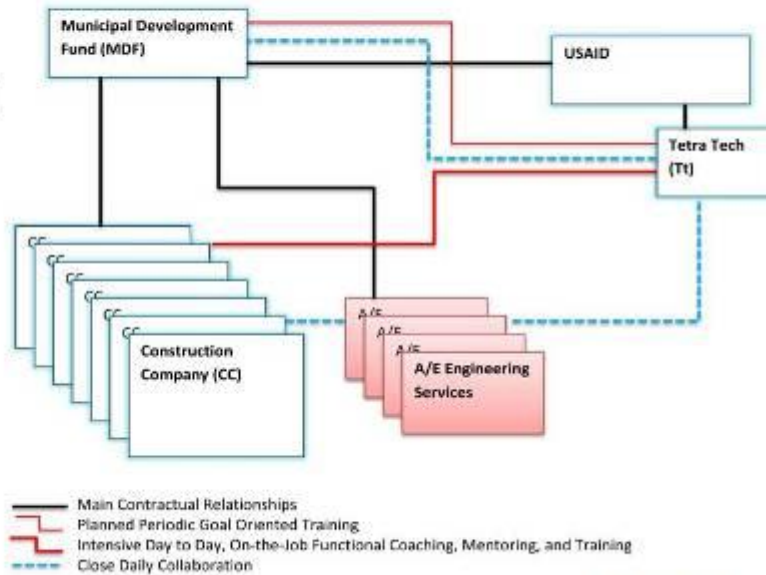




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Proposed GMIP CM Organizational Arrangements



Page 27



Alternatives to Strengthening MDF CM Practices – Recommended Approach

MDF Contracts Engineering Firm(s) Including Well Defined Close Coordination and Oversight with Tetra Tech

- Requires Consultant SOW Development and Contracting for Services
- Requires Additional Consultant Engineering, Technical and Administrative Staff and Addition of Other Consultant Provided Transport, Office, IT, Resources
- Write and Adopt Specific GMIP Operations CM QC Plan (Includes MDF Management Role with Tetra Tech Coordination and Oversight Role)
- Train Staff, Implement New Plan

Advantages – Faster Implementation, Improved CM Quality Assurance and Control, More Opportunity for MDF Staff Training

Disadvantages – Some Additional Cost, Some Time to Arrange and Implement Institutional Arrangements

Page 28





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Other Suggested Process Improvements to the Overall GMIP CM Program for MDF, Tt, USAID, Contractors and Owners

- **Translations**
- **Training Plan(s)**
- **Use of Engineering University Students**
- **Gender Issues**
- **Operations & Maintenance Issues**

Summary, Wrap Up, Identify Any Follow-On Tasks

- **Further Discussions, Scopes of Work, Other Documentation**

Page 20



Thank You!

